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Cat. No. 21-1701

OWNER'S MANUAL

Please read before using this equipment.

TRC-501

40-Channel 2-Way CB Radio

RadioShack™

INTRODUCTION

Your RadioShack TRC-501 40-Channel 2-Way CB Radio is a high performance CB with the maximum legally allowable power and innovative styling.

This CB is perfect for recreational, business, or emergency use. You can call other people who have CBs at home, in their vehicles, or at camp sites. You can also connect optional equipment to your CB, such as an external PA speaker, or a DC power supply and base station antenna to set up a base station in your home.

Your CB has these features:

PLL (Phase-Locked Loop) Frequency Synthesizer — provides reliable and exact tuning using a precise frequency reference crystal.

Two Ceramic Filters — provide superior selectivity and prevent adjacent-channel interference.

Hysteresis Squelch Circuit — compensates for fading signals and eliminates signal chopping during reception.

Automatic Noise Limiting (ANL) Circuit — reduces noise caused by nearby electrical equipment such as motors or automotive ignition systems.

DOWN/UP Channel Selector — provides maximum convenience when selecting channels.

LED Display — lets you easily see the selected channel number.

Universal Mounting Bracket — lets you mount your CB securely in your vehicle or on a table or shelf in your home.

Note: To use this CB, you need a mobile or base station antenna. Your local Radio Shack store has a wide variety of antennas.

We recommend you record your CB's serial number here. The number is on the CB's back panel.

Serial Number_____

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FCC INFORMATION

The Federal Communications Commission (FCC) does not require you to have a license to operate this CB. However, the FCC does require you to read and know Part 95 of *FCC Rules*. These rules apply to the operation of a Class D CB. We have provided a copy of these regulations with your CB.

Warning: Do not open your CB to make any internal adjustments. Internal adjustments must be made only by authorized service personnel.

Internal adjustments and/or modifications can lead to illegal operation as defined by Part 95 of *FCC Rules*. Such illegal operation can lead to very serious consequences.

To be safe and sure:

- Never open your CB's case.
- Never modify your CB.

Your CB might cause TV or radio interference even when it is operating properly. To determine whether your CB is causing the interference, turn off your CB. If the interference goes away, your CB is causing the interference. Try to eliminate the interference by:

- Moving your CB away from the receiver.
- Contacting your local RadioShack store for help.

If you cannot eliminate the interference, the FCC requires that you stop using your CB.

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INSTALLATION

MOUNTING THE MICROPHONE HOLDER

Using a Phillips screwdriver and the supplied small screws and small metal washers, attach the supplied microphone holder horizontally or vertically to either side of the CB.

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CONNECTING THE MICROPHONE

Make sure the pins on the microphone cable's plug are aligned with the holes in the CB's microphone jack on the front of transceiver and insert the plug into the jack.

To disconnect the microphone cable, press and hold down the small tab on the microphone plug, then pull out the plug.

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Caution: Never pull on the microphone cable.

MOUNTING THE TRC-501

The most common mounting location for this CB is under a vehicle's dashboard. However, if you use the TRC-501 as a base station, you can place it on a desk, shelf, or table (see "Using the CB as a Base Station" on Page 8).

If you are mounting the CB in a vehicle, choose a location where:

- You can easily reach the CB.
- Wires and cables will not interfere with the vehicle's pedals or other moving parts.
- The CB is not directly in front of heating vents.
- All wires and cables will reach their connection points.

Caution: If you use the TRC-501 in a vehicle, mount it securely to avoid damage to the CB or vehicle during sudden starts or stops.

Follow these steps to mount the CB using the supplied hardware.

1. Using the mounting bracket as a template, mark the positions for the three screw holes.

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2. In each marked location, drill a hole slightly smaller than the supplied large screws.

   Caution: Be careful not to drill into anything behind the mounting surface.

3. Using a Phillips screwdriver, attach the mounting bracket to the mounting surface with the large screws and supplied lock washers.

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4. Attach the CB to the mounting bracket using the rubber washers and mounting knobs.

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CONNECTING AN ANTENNA

Caution: To prevent damage to your CB, you must connect an antenna to the CB before you operate it.

Selecting an Antenna

Although this CB is designed for mobile use, you can also use it as a base station. When deciding on a mobile or base-station antenna and its location, consider these points:

- For the best performance, the antenna should be vertical and located as high as possible.
- The antenna and antenna cable should be as far as possible from sources of electrical noise (ignition systems, gauges, etc.).

Your local RadioShack store sells a variety of CB antennas (for both mobile and base-station use), coaxial antenna cable, and connectors.

Connecting the Antenna

Once you choose an antenna, follow the mounting instructions supplied with it.

Warning: Use extreme caution when you install or remove a base station CB antenna. If the antenna starts to fall, let it go! It could contact overhead power lines. If the antenna touches the power line, contact with the antenna, mast, cable, or guy wires can cause electrocution and death. Call the power company to remove the antenna. DO NOT attempt to do so yourself.

Then route the antenna cable to the CB and connect the cable to the **ANTENNA** jack on the back of the CB.

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Cautions:

- Do not run the cable over sharp edges or moving parts.
- Do not run the cable next to power cables or other CB antenna cables.
- Do not run the cable through a vehicle's engine compartment or other areas that produce extreme heat.

CONNECTING AN OPTIONAL EXTERNAL SPEAKER

To make the CB easier to hear in noisy environments, you can connect it to an external CB speaker. Use an 8-ohm speaker capable of handling 3–5 watts of power (such as RadioShack Cat. No. 21-549). The speaker's cable must have a $^{1}/_{8}$-inch plug.

Simply plug the speaker cable into the CB's **EXT 8Ω** jack.

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Speaker Cable

Note: When you connect an external speaker, the CB's internal speaker automatically disconnects.

CONNECTING POWER

You can power this CB from your vehicle's battery or from standard AC power with an optional DC power supply (such as Cat. No. 22-120).

Using Vehicle Battery Power

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1. Connect the CB's red wire, with in-line fuse, to a source of voltage that turns on and off with the ignition switch, such as a spare accessory terminal in your vehicle's fuse box.
2. Connect the CB's orange wire, with in-line fuse, to a source of voltage that supplies constant positive (+) power, or directly to your vehicle's positive (+) battery terminal. This connection is for memory back-up.
3. Connect the CB's black wire to your vehicle battery's negative (—) terminal, or a metal part of the vehicle's frame that is not insulated from the frame by a plastic part

Using the CB as a Base Station

Caution: Most 12-volt DC power supplies plug into a standard AC outlet to produce DC power. Before connecting your CB to a 12-volt DC power supply, read and follow the instructions provided with the power supply.

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1. Connect the CB's red and orange wires, each with in-line fuses, to the DC power supply's positive (+) terminal.
2. Connect the CB's black wire to the DC power supply's negative (—) terminal.
3. Plug the power supply's cord into a standard AC outlet.

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OPERATION

Before you start using your CB, you should know how to use it effectively and courteously. “CB Operation Tips” on Page 10 has information that will help you use and enjoy your CB.

RECEIVING TRANSMISSIONS AND ADJUSTING SQUELCH

Caution: Do not attempt to use your CB without first connecting an antenna to it.

1. Turn **SQUELCH** fully counterclockwise.

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2. To turn on the CB, turn **VOLUME** clockwise until you hear it click and you hear a hissing sound. The CB displays a channel number.

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3. Turn **SQUELCH** clockwise until the hissing sound stops.

   Note: If the CB picks up unwanted, partial, or very weak transmissions, turn **SQUELCH** clockwise to decrease the CB’s sensitivity to these signals. If you want to listen to a weak or distant station, turn **SQUELCH** counterclockwise.

4. Adjust **VOLUME** to a comfortable listening level.

5. Press **DOWN** to select lower channel numbers or **UP** to select higher channel numbers. The channel number appears on the display.

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   Important! Channel 9 is reserved for motorist assistance and for reporting emergency information about accidents, hazardous road conditions, and so on. Always give emergency messages priority on Channel 9.

6. To turn off the TRC-501, turn **VOLUME** counterclockwise until you hear it click.

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TRANSMITTING

We recommend you try receiving transmissions before you transmit.

1. Follow Steps 1–5 under "Receiving Transmissions and Adjusting Squelch."
2. Hold the microphone 2 or 3 inches from your mouth. Then press and hold down the microphone talk button and speak into the microphone in a normal voice. The TX indicator turns on.

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Note: Do not speak too loudly when transmitting. It does not make your signal any stronger, and might distort your transmission.

3. When you finish transmitting, release the microphone talk button. The TX indicator turns off. You can now receive transmissions.
4. To turn off the TRC-501, turn **VOLUME** counterclockwise until you hear it click.

CB OPERATION TIPS

Like most activities, CB radio has its customs and courtesies. The following tips will help you get the most enjoyment from your CB.

Common Uses for a CB Radio

Business Uses

- Truck drivers and delivery personnel can learn road and traffic conditions and get assistance in locating destinations. A CB is also good company on those "long hauls."
- On construction crews, a CB quickly pays for itself when you are calling for additional materials or coordinating the activities of different work crews.
- For security officers, a CB is more than a convenience — it is a must for both safety and efficiency.

Personal Uses

- Keep in touch with home while driving to work, to the store, or to a social activity. Let your family know you are tied up in traffic or that you will stop by the store on the way home.
- If you are a two-car (or more) family, CBs are great for communicating with family members while they are in their cars.

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- Contact friends or neighbors — find out "what's happening" or plan a get-together.
- Ever have car trouble or run out of gas on the highway? What an assurance it is to be able to radio for assistance!
- Camping, fishing, and other sports are more fun with a CB. Locate a buddy or find out "what's cooking" back at camp.

CB Courtesy

- Wait for a pause in someone else's transmission before you ask for a break.
- If you do not receive an answer to your call after a second attempt, sign off and wait several minutes before trying again.
- Do not hold down the microphone talk button when you are not talking. (This is called *dead keying*.)
- Assist callers with directions, information about road conditions, and any other reasonable requests.

Maximum Range

The maximum range and quality of CB transmissions vary depending on these conditions:

- The type and quality of antenna used.
- The height of the antenna's mounting location — the higher the antenna, the better the signal's range.
- The surrounding terrain — mountains and tall buildings limit the range.
- Weather conditions.
- The number of nearby CBs operating on the same channel.
- Standing wave ratio (SWR) between the antenna and the CB. You can check the SWR between the CB and a mobile or base-station antenna using an SWR tester (Cat. No. 21-523). Follow the instructions supplied with the SWR tester and the mobile or base-station antenna to change the SWR, if necessary.

Using Common 10-Codes

Citizen's band operators have largely adopted the 10-codes for standard questions and answers. These codes permit faster communication and better intelligibility in noisy areas.

These tables list the codes adopted by the Associated Public Safety Communications Officers (APCO).

Code	Meaning
10-1	Cannot understand your message.
10-2	Your signal is good.
10-3	Stop transmitting.
10-4	Message received and understood.
10-5	Relay information to _____.
10-6	I am busy or are you busy?
10-7	Out of service.
10-8	In service.
10-9	Repeat last message.
10-10	Negative (No).
10-11	_____ in service.
10-12	Stand by.
10-13	Report _____ conditions.

Code	Meaning
10-14	Information.
10-15	Message delivered.
10-16	Reply to message.
10-17	En route.
10-18	Urgent.
10-19	Contact _____.
10-20	What is your location?
10-21	Call _____ by telephone.
10-22	Cancel last message.
10-23	Arrived at the scene.
10-24	Assignment complete.
10-26	Estimated time of arrival is _____.
10-30	Use caution.
10-31	Pick up.
10-33	Emergency traffic. Clear the channel.
10-34	What time is it?

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TROUBLESHOOTING

If your CB is not working as it should, follow the suggestions below to see if you can eliminate the problem. If you cannot, take the CB to your local RadioShack store for assistance.

Symptom:	Check That:
Trouble with reception	• The CB is turned on. • **VOLUME** is turned up. • **SQUELCH** is adjusted properly. • The microphone is securely connected to the CB. • The antenna cable is securely connected to both the antenna and the CB.
Trouble with transmission	• The CB is turned on. • The microphone is securely connected to the CB. • All connectors are clean and tightened. • The antenna cable is securely connected to both the antenna and the CB. • You are fully pressing the microphone talk button.
CB does not work at all	The power supply (either vehicle or 12V DC) is working and the in-line fuse is not blown; see “Replacing the Fuse” on Page 16.

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REDUCING NOISE

The Automatic Noise Limiting (ANL) circuit helps keep background noise to a minimum. However, strong sources of electrical noise (such as your vehicle's ignition, another radio, or spark plugs) might be more than the circuit can compensate for.

If you operate the TRC-501 with a vehicle's engine off, you should not have any problems with noise. If you use the CB with the engine on, you can determine the source of the noise by turning off the engine and operating the CB with the ignition set to ACC. If most or all of the noise goes away, the problem is in your vehicle's ignition or electrical system.

Here are a few hints to help you reduce or eliminate such noise:

- Replace old ignition wires with new, high-voltage, noise-suppression wires.
- Install noise suppressors on your spark plugs, or install new spark plugs that have built-in suppressors.
- Be sure that the ground connection (black wire) is secure.

If problems persist, check your alternator/generator, regulator, and gauges. Noise from these sources can be reduced or eliminated using bypass capacitors at various output voltage points.

Your local RadioShack store has a wide selection of noise-suppression accessories.

MAINTENANCE

Your TRC-501 40-Channel 2-Way CB Radio is an example of superior design and craftsmanship. The following suggestions will help you care for your CB so you can enjoy it for years.

Keep the CB dry. If it gets wet, wipe it dry immediately. Liquids might contain minerals that can corrode the electronic circuits.

Handle the CB gently and carefully. Dropping it can damage circuit boards and cases and can cause the CB to work improperly.

Keep the CB away from dust and dirt, which can cause premature wear of parts.

Wipe the CB with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the CB.

Modifying or tampering with the CB's internal components can cause a malfunction and might invalidate your CB's warranty and void your FCC authorization to operate it. If your CB is not performing as it should, take it to your local RadioShack store for assistance.

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REPLACING THE FUSE

The TRC-501's 2-amp and 1-amp fuses help protect your CB from power surges and short circuits.

- If the black wire's fuse is blown, replace it with a 2-amp, fast-acting glass fuse (Cat. No. 270-1007).
- If the orange wire's fuse is blown, replace it with a 1-amp, fast-acting glass fuse (Cat. No. 270-1005).

Follow these steps to check and replace each fuse, if necessary.

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1. Make sure the power source and CB are both turned off.
2. To open the fuse holder, push the fuse holder ends together, then turn either end counterclockwise and release it.
3. If the fuse is blown, replace it.

   Caution: Make sure you replace the fuse only with another fuse of the same type and rating.
4. To close the fuse holder, push the fuse holder ends together, then turn either end clockwise.

SPECIFICATIONS

RECEIVER

Frequency Coverage	All 40 CB Channels (Class D) 26.965 to 27.405 MHz
Sensitivity	0.7 µV or better for 10 dB (S+N)/N
Adjacent Channel Rejection	55 dB
Audio Output	3 Watts (Minimum)
Frequency Response	–6 dB (at 450–2500 Hz)
Intermediate Frequency	1st 10.695 MHz 2nd 455 kHz
Cross Modulation	50 dB
Squelch	Adjustable from 0.5 µV to 1 mV

TRANSMITTER

Frequency Coverage	All 40 CB Channels (Class D) 26.965 to 27.405 MHz
Output Power	4 Watts (FCC Maximum)
Type of Modulation	AM Double Sideband, Full Carrier Modulation
Modulation Capability	90%
Spurious Emission	–60 dB
Frequency Tolerance	±200 Hz
Antenna Impedance	50 Ohm
Current Drain (13.8 volt supply)	1 Amp with No Modulation 1.6 Amps with 90% Maximum Modulation

GENERAL

Power Requirements	13.8 Volts DC, Negative Ground
Dimensions	$1^{5}/_{16}$ x $4^{1}/_{2}$ x $6^{5}/_{16}$ Inches (HWD) (33 x 114 x 160 mm)
Weight	15.7 oz (445 g)

Specifications are typical; individual units might vary. Specifications are subject to change and improvement without notice.

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NOTES

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RadioShack Limited Warranty

This product is warranted against defects for 90 days from date of purchase from RadioShack company-owned stores and authorized RadioShack franchisees and dealers. Within this period, we will repair it without charge for parts and labor. Simply **bring your RadioShack sales slip** as proof of purchase date to any RadioShack store. Warranty does not cover transportation costs. Nor does it cover a product subjected to misuse or accidental damage.

EXCEPT AS PROVIDED HEREIN, RadioShack MAKES NO EXPRESS WARRANTIES AND ANY IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THE WRITTEN LIMITED WARRANTIES CONTAINED HEREIN. Some states do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

We Service What We Sell *10/95*

RadioShack
A Division of Tandy Corporation
Fort Worth, Texas 76102

7A6 Printed in Thailand